DOCUMENT RESUME

ED 298 689 EC 210 622

AUTHOR Yoder, John H.
TITLE The Behaviour Rating Scale as a Screening Device for Learning Disabled Children in Botswana.
PUB DATE Apr 88
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 5-9, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Rating Scales; Classroom Observation Techniques; Elementary Education; Foreign Countries; *Handicap Identification; *Learning Disabilities; *Screening Tests; Teacher Background
IDENTIFIERS *Botswana

ABSTRACT

The study evaluated the effectiveness of an adaptation of the Behavior Rating Scale (BRS), a child observation form, as a screening device for identifying learning disabled children in the primary schools of Botswana. Children (N=620) in two different primary school grades (standards 5 and 7) and two different types of schools (Setswana Medium and English Medium) were evaluated. Scores of children identified by teachers as possibly learning disabled were compared to scores of non-identified children. Results suggested that: (1) mean total and subscale BRS scores of identified children were lower than those not so identified; (2) less educated teachers and those teaching in the lower standards tended to have the most undifferentiated responses; (3) use of the scale should be differentiated by user population; (4) distinction needs to be made between statistically significant results (shown by the study) and practically significant results (not yet demonstrated). (DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED298689

THE BEHAVIOUR RATING SCALE AS A SCREENING DEVICE FOR LEARNING DISABLED CHILDREN IN BOTSWANA

by

John H. Yoder

University of Botswana
P/B 0022
Gaborone, Botswana
Africa

Ohio University
College of Education
Athens, Ohio 45701
USA

A Paper Presented at The Annual Meeting
of the
American Educational Research Association

New Orleans

April 1988

BEST COPY AVAILABLE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
John H Yoder
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EC 210622

TABLE OF CONTENTS

Acknowledgements....ii

ABSTRACT....iii

Research Questions....6

The Behaviour Rating Scale....6

Procedures....10

Sample....10

TABLE ONE....11

Measures....11

TABLE TWO....11

Analysis and Discussion....12

TABLE THREE....12

TABLE FOUR....13

TABLE FIVE....14

TABLE SIX....15

Discussion of Comparisons....15

Correlations....16

TABLE SEVEN....16

Factor Analysis....17

FIGURE ONE....18

FIGURE TWO....19

FIGURE THREE....20

FIGURE FOUR....21

Discussion of Factor Analysis....21

Conclusion and Recommendations....22

References:....23

Acknowledgements

This research was made possible by a grant from the Research and Publications Committee of the University of Botswana to whom grateful appreciation is expressed.

Appreciation is also expressed to the Botswana Ministry of Education for granting permission to conduct research in the schools and in particular to the heads, staff and students of the following schools for their gracious assistance and cooperation:

Ben Thema Primary School
Northside Primary School
Segoditshane Primary School
Thornhill Primary School

J. Yoder
April 1988

ABSTRACT

THE BEHAVIOUR RATING SCALE AS A SCREENING DEVICE FOR LEARNING DISABLED CHILDREN IN BOTSWANA

John H. Yoder

University of Botswana
P/B 0022
Gaborone, Botswana
Africa

Ohio University
College of Education
Athens, Ohio 45701
USA

The Behaviour Rating Scale (BRS) is a child observation form which can be used by teachers to help them identify children in their classrooms which may have special learning problems. In it's present form the BRS has been specially adapted for use in the primary schools of Botswana, and yields six subscales scores and a total score based on observations of the child by his/her teacher.

This study evaluates to effectiveness of the BRS as as screening device for Learning Disabled Children in Botswana and investigates further the internal structure of the scale itself when used in this setting. Research questions include:

1. How well do BRS Total Scores and Subscale Scores discriminate between children who may be learning disabled and those who are not?

2. What are the underlying factor structures of the scale when used in the Botswana setting?

3. Does the BRS perform differently in different types of schools in Botswana?

A total of 620 children in two different primary school grades (standards five and seven) and two different types of schools (Setswana Medium and English Medium) were used in the study. Data from each of the groups were analyzed separately. Mean scores of children in teacher-identified learning disabled groups are compared with those of non-identified groups. Items on the scale are factor analyzed to discover underlying factor structures which may exist.

Results suggest that:

1. Mean BRS Total Scores of children who have been identified by teachers as possibly learning disabled are lower than those not so identified. For three of the four sample groups subscale scores differentiate as well, although with varying amounts of effectiveness.

2. Underlying factor structures of the scale vary depending on the group. The group in which responses were most undifferentiated (i.e. the most simple factor structure) were those in which the teachers tended to be the least educated and which were teaching in the lowest standards; while the most complex structures tended to be found in those standards in which the teachers were most highly educated.

3. Use of the scale should be differentiated by user population. Additional research is needed on teacher perceptions of the scale itself and of their perceptions of the

characteristics of the children in their classes.

4. Distinction needs to be made between statistically significant results and practically significant results. While this study has demonstrated the former, with regard to the BRS, the later remains to be shown. Further research with the BRS is recommended particularly item analyses.

THE BEHAVIOUR RATING SCALE AS A SCREENING DEVICE FOR LEARNING DISABLED CHILDREN IN BOTSWANA

by

John H. Yoder

University of Botswana
P/B 0022
Gaborone, Botswana
Africa

Ohio University
Athens, Ohio 45701
USA

The Behaviour Rating Scale is a child observation form which can be used by teachers to help them identify children in their classrooms who may have special learning problems. Work on the scale was motivated by conversations with Botswana primary school teachers and others who speak of children in their classes who appear to have unusual difficulty learning what most children learn as a matter of course--yet these same children often appear to be very bright in other areas. These teacher observations are substantiated by an earlier report (Yoder and Kibria, 1986) noting that there were substantial numbers of primary school children in Botswana who could possibly be classified as learning disabled. The conclusions of that report were tentative since acceptable diagnostic procedures are presently unavailable in Botswana. Nevertheless, the need for further development of screening and diagnostic instruments was emphasized.

The present study evaluates the effectiveness of the Behaviour Rating Scale (BRS) as a screening device for learning disabled children in Botswana, and investigates further the psychometric structure of the scale when used in the Botswana setting.

Research Questions

The basic research questions to be addressed in this study are as follows:

1. How well do BRS total scores and subscale scores discriminate between children who are learning disabled and those who are not?

2. What is the underlying factor structure of the scale? What are the relationships of the subscales to each other?

3. Does the BRS perform differently when used with children from different types of schools in Botswana?

The Behaviour Rating Scale

The conceptual roots of the Behaviour Rating Scale are found in the work of H. Myklebust at the Learning Disabilities Centre at Northwestern University in the United States. His work was but one part of a broader focus during the 1960's and 70's when the problem of learning disabled children in schools received an increasing amount of attention in the US (e.g. see Bryant and McGloughlin, 1972, Cruikshank, Morse and Johns, 1980, Kephart 1960, Kirk and Gallagher, 1983). In that setting, learning disabled children are those who appear to be average (or even above average) in intelligence but who for reasons not apparent or very well understood are having unusual difficulty with some or all of their school work. This concept of the learning disabled child as one who is neither Mentally Retarded or a "Slow Learner" is less well understood in many other parts of the world. This is particularly true of Africa and

many parts of the developing world in which even universal "basic education" has yet to be realized (e.g. see Kilonzo, 1982, Tarnopol & Tarnopol, 1981). Research in Learning Disabilities carried on in the US led to estimates that from 3 percent to 28 percent of children in a normal school classroom in America fail to progress because of such a deficit (see Bryant and McGloughlin, 1972). Yoder and Kibria's (1987) findings suggest that in Botswana's primary school classrooms the percentage may range as high as 12 percent although, as noted earlier, this remains to be verified. The Pupil Rating Scale developed by Myklebust was designed to help in the initial screening of such children.

The Behaviour Rating Scale, developed in Botswana, is in part, an adaptation of Myklebust's Pupil Rating Scale (1981) and a later adaptation of that scale funded in America under USPHS Contract 108-65-42. While the scales are similar the BRS has been completely changed in format and wording and has been expanded to include an additional section on academic achievement.

The Behaviour Rating Scale (BRS) consists of the following six subscales each of which contains from three to eight separate items. Each of the subscales focuses on a specific area which may be associated with learning disabilities.

A. Auditory Memory and Comprehension (Receptive Language)

This subscale focuses on the child's ability to listen and understand what is being said. In completing this part of the scale the teacher makes observations on the child's ability to:

1. Follow directions
   (Being able to understand, remember and carry out specific sequences of instructions>)

2. Understand class discussions.
   (Being able to follow and understand what is being said in classroom discussions which may involve different speakers)

3. Remember information which was presented auditorally.
   (The ability to remember things from one day to the next.)

4. Understand word meanings.
   (Not necessarily the ability to express themselves or speak well.)

5. Relate facts to ideas.
   (Relating factual information to more abstract ideas.)

B. Spoken Language (Expressive Language).

This subscale is concerned with the child's ability to produce meaningful language. In this subscale the teacher specifically observes the child's ability to:

1. Speak in correct sentences.
   (Appropriate to his/her age)

2. Use vocabulary and words appropriate for his or her age.

3. Recall specific words.

(This does not refer to remembering what has been learned in general but refers to specific words which the child evidently knows but has difficulty remembering when he/she is speaking.)

4. Story Telling.
   (The ability to relate experiences as well as to organize and express ideas.)

C. Orientation.

This subscale is concerned with the child's ability to be "in touch" with his or her surroundings and includes knowing how to get from one place to another and knowing how to judge time and direction. Of particular interest here is the child's ability to perceive relationships between himself and the environment. In this subscale the teacher is asked to rate the child in the following areas:

1. Judging time.
   (For example a child who is habitually behind in everything may not have an adequate sense of the passage of time.)

2. Spatial Organization.
   (Is the child able to conceptualize him/herself in relation to his or her physical surroundings?)

3. Judging Relationships.
   (I.e. Big, little, smaller, larger, etc.)

4. Knowing directions.
   (Having an appropriately clear sense of "right-hand", "left hand," etc..)

D. Behaviour.

Many learning disabled children experience deficits in their personal/social behaviour. Some tend to be overactive, others have a very short attention span, are distractable, or have poor self-control. In this subscale the child's behaviour is rated in the following areas:

1. Cooperation.
   (The ability to work harmoniously with others toward a shared goal.)

2. Attention.
   (The ability to direct and maintain his or her attention toward the task at hand.)

3. Organization.
   (Can the child organize himself and his affairs--for example assignments--in a reasonably orderly way?)

4. Adjusting to new situations.
   (Can the child adjust quickly and satisfactorily to the unfamiliar without losing control or becoming unduly excited?

5. Social Relations.
   (How does the child interact with others in the classroom or school? How well is he or she generally accepted by others?)

6. Responsibility.
   (How well does the child accept responsibility for him/herself? Can he/she look out for him or her self without interfering with others?)

7. Completion of Assignments.
   (How well is the child able to approach and complete an assigned task without undue wastage of time and/or effort?)

8. Consideration for Others.
   (Is the child able to perceive and respond appropriately to the feelings and reactions of others?)

E. Movement Activities (Physical Coordination.)

This may include general awkwardness in walking, running, jumping, etc. or in difficulty with fine motor tasks such as buttoning or holding a pencil. In this subscale teachers rate:

1. General ability to climb, jump, etc.
   (Overall coordination)

2. Sense of Balance.

3. Manual Dexterity
   (Finger and hand action in using scissors, writing, tying knots, etc.)

F. Academic Skills

In this subscale, the teacher is concerned with identifying specific academic related behaviours which can be observed as the child does his or her school work. Some of these behaviours are related to various of the previous subscales but are more specifically observed in particular classroom behaviours. These include:

1. Reversals
   (This includes both letter and word reversals.)

2. Substitutions
   (Seeing one word or letter but replacing it with something else--often similar.)

3. Even-ness of academic work.
   (Are there wide fluctuations in the quality of the child's work from one day to the next?

4. Spelling
   (Often a key to overall performance.)

5. Copying skills.
   (Is the child able to copy objects, words or diagrams accurately?)

6. Handwriting skills.
(Handwriting that is unusually poor when compared to other children of approximately the same level of schooling.)

7. Underachievement.
(A child who is not working up to the level of his or her potential.)

There are a total of twenty-nine items altogether in the scale. The subscales are arranged as separate sections and each of the items within the subscales is presented as a five point Likert-type scale, the centre point of which represents average while higher and lower than average are arranged to the right and left of the centre point respectively. A short descriptive statement is provided for each of the five points on each item. The teacher is asked to compare the child in question with the typical child in the same age/standard group on each of the items by marking the statement (or point) on each item which most accurately describes the child as compared to his or her peers. Thus a child who is judged by the teacher to be average on a given item would receive a score of "3" . Scores are calculated for each subscale and for the total scale by adding the point values from each of the items and dividing by the number of items in the subscale or (in the case of the Total score) the total number of items in the scale. Thus the subscale and total scores are averages of the item scores and, again, the child whose rating across all the items of a subscale are similar to that of the typical child in that class would receive an average rating of "3".

Sample

A total of six hundred and twenty children from standards five and seven at four different schools were included in the sample. All the children in each those standards were included. Two of the schools were Setswana Medium Schools while two were English Medium. The Setswana Medium schools are government schools which use Setswana as the primary medium of instruction during the first four years, although English is taught as a subject. Beginning in standard five the medium of instruction becomes nominally English. The English Medium schools, on the other hand, are private, fee-charging schools. English is used as the medium of instruction beginning in the first standard. Because of the fees charged in the English Medium schools the children who attend there tend to be those whose parents are in the professions, business or government or who are expatriate.

Procedures

Since the home and educational background of children from the two types of schools (as well as the schools themselves) are very dissimilar they could not justifiably be combined into a homogeneous group and were treated as two separate groups in the data analysis. Students from the two standards were also treated as separate groups, thus resulting in a total of four groups. Table One indicates the number and sex of the children included in each of the groups.

TABLE ONE

Number and Sex of Children From Each Standard And School

	Tswana Medium		English Medium	
	Standard Five	Standard Seven	Standard Five	Standard Seven
Males	66	66	83	75
Females	89	81	71	73
Total	155	147	154	148

Measures

The following data were collected from each of the sample classes with the exception that the teachers in the English Medium schools did not participate in the "Teacher Identification" exercise.

1. Teacher Identification.

Teachers of the target classes were given a brief orientation to the concept of the Learning Disabled Child including a list, compiled from the literature, of "typical" behavioural characteristics of learning disabled children. They were then instructed to identify by name any children from their classes who consistently demonstrated at least ten or more of the characteristics from the list. The teacher's lists of children were collected from the head teacher of each school about two weeks later.

In order to avoid possible contamination of subsequent data, the teachers who completed this exercise were those who had taught the sample children during the previous school year (i.e. the teacher who had taught the standard fives while they were in standard four). The exercise was completed early in the academic year while it could be assumed that the memory of the previous year's class was still relatively vivid to the teacher who had had them. Table Two indicates the percentage of children in each of the classes that were identified by their teachers.

TABLE TWO
PERCENTAGE OF CHILDREN IDENTIFIED BY THEIR FORMER TEACHERS AS POSSIBLY LEARNING DISABLED

Setswana Medium		English Medium	
Std Five	Std. Seven	Std Five	Std. Seven
11%	8%	N/A	12%

2. Behaviour Rating Scale (BRS).

The current teachers of each of the classes were asked to complete the BRS for each of the children in their class. This was completed over a period of approximately two weeks time. Although the return rate of completed scales was 100 percent, it was apparent from conversations with the teachers that most perceived completion of the scale as a time consuming task and generally tedious task.

3. Measures of School Performance.

Student marks were obtained from each of the schools, however lack of consistency in format and unreliability in the marks themselves made it impossible, in the end, to use these in the analysis.

Analysis and Discussion

For purposes of comparison results were considered separately for each of the four groups in the sample. Table Three shows the Mean Subtest Scores by group.

TABLE THREE

MEAN SUBTEST AND TOTAL SCORES BY GROUP

	Receptive Language	Expressive Language	Orientation	Pers./Soc. Behaviour	Physical Coord.	Academic Skills
Setswana 5	2.74	2.69	2.99	3.05	3.30	3.00
Setswana 7	2.94	2.87	3.43	3.31	3.54	3.41
English 5	3.11	3.05	3.24	3.19	3.27	3.16
Setswana 7	3.26	3.21	3.42	3.33	3.25	3.47

As can be seen from the table, the mean of each group was different for each of the subscales. In general, the Setswana Standard Fives tended to be rated the lowest by their teachers, while the English Medium Sevens (with a few exceptions) tended to be rated the highest. This is particularly true in the language areas--both expressive and receptive. Physical Coordination and Orientation, on the other hand, seemed to present a different pattern. Whether or not these scores express actual differences between the groups or whether they are more indicative of teacher "response sets" is not clear. Nevertheless it appears that the teachers of the Setswana standard five children perceived them as having greater difficulty with language areas of learning than any of the other three groups. It can further be observed that for all the groups, expressive language was considered more problematic than receptive language.

1. How well do the Total BRS scores and the subscale scores differentiate between children who are learning disabled and those who are not?

In the absence of acceptable identification measures for learning disabled children in the sample, this question could not be answered in a fully satisfactory way. As an attempt to address the question, however, separate means and standard deviations were calculated for those children identified by teachers as possibly learning disabled and those not so identified and compared by means of a *t*-Statistic for Non-Correlated Samples. The results of the comparisons are shown in Tables Three to Five. Since the teachers in the English Medium Standard Fives did not participate in the Teacher Identification process only three groups can be shown.

TABLE FOUR

COMPARISON OF SUBSCALE MEANS AND STANDARD DEVIATIONS FOR IDENTIFIED AND NON-IDENTIFIED GROUPS

SETSWANA MEDIUM, STANDARD FIVE

	Identified		Non-Identified		
	Mean	St.Dev.	Mean	St.Dev.	t
ReceptiveLanguage	2.19	.62	2.76	1.04	**
Expressive Language	2.14	.45	2.66	1.02	***
Orientation	2.85	.28	2.91	.95	
Per/Soc Behaviour	2.11	.50	2.96	1.01	*
Physical Coordination	3.02	.80	3.26	.82	***
AcademicSkills	2.45	.62	2.95	1.15	**
Total Scores	2.55	.41	2.91	.95	**

t = Significane Level of t-Statistic
*p < .05
**p < .01
***p < .001

As can be seen from Table Four, for the Setswana Standard Fives, the Total Score and all but one of the subscale scores of those children who had been identified as being possibly learning disabled were significantly lower than those of the children not so identified. The greatest differences were in the areas of Expressive Language and Physical Coordination while the area in which there was least difference was Orientation.

TABLE FIVE

COMPARISON OF SUBSCALE MEANS AND STANDARD DEVIATIONS
FOR IDENTIFIED AND NON-IDENTIFIED GROUPS

SETSWANA MEDIUM, STANDARD SEVEN

	Identified		Non-Identified		
	Mean	St.Dev.	Mean	St.Dev.	t
ReceptiveLanguage	2.35	.83	2.99	1.09	
Expressive Language	2.29	.72	2.90	1.05	*
Orientation	3.06	.63	3.45	.89	
Per/Soc Behaviour	2.89	.60	3.33	.85	
Physical Coordination	3.39	.72	3.52	.82	
AcademicSkills	2.93	.60	3.42	.91	
Total Scores	2.80	.50	3.27	.85	**

t = Significance Level of t Statistic
*p < .05
**p < .01
***p < .001

As Table Five indicates, the scores from the Setswana Standard Sevens did not distinguish between the two groups as clearly as for the Standard Fives. In the Standard Seven group, only Spoken Language and the Total Score differentiated at a significant level. The reason for this difference in pattern is not immediately clear.

TABLE SIX

COMPARISON OF SUBSCALE MEANS AND STANDARD DEVIATIONS
FOR IDENTIFIED AND NON-IDENTIFIED GROUPS

ENGLISH MEDIUM, STANDARD SEVEN

	Identified		Non-Identified		
	Mean	St.Dev.	Mean	St.Dev.	t
ReceptiveLanguage	2.65	.52	3.25	.96	***
Expressive Language	2.84	.67	3.22	.89	*
Orientation	3.01	.38	3.39	.81	**
Per/Soc Behaviour	2.76	.57	3.32	.73	*
Physical Coordination	2.86	.51	3.22	.73	*
AcademicSkills	2.83	.58	3.48	.94	**
Total Scores	2.81	.39	3.33	.80	***

t = Significance Level of t Statistic
*p < .05
**p < .01
***p < .001

Table Six indicates that the scores for the children in the English Medium Standard Seven classes consistently distinguished between those that the teachers had identified and those they had not. While all of the differences were statistically significant at less than the .05 level, the strongest differentiation was observed in Receptive Language and Total Scores.

Discussion of Comparisons.

The answer to the first research question, then appears to be that the Total BRS scores do seem to distinguish between the identified and the non-identified children in the sample. Subscale scores in most cases tend to differentiate as well, but patterns and strengths of the differentiation differs between subscales and between sample groups. It should be noted, of course, that the rationale for the comparisons depends, as a point of reference, on the more or less subjective and global judgement which the teachers made in the process of identification. Obviously, in the final analysis, such a criterion is not acceptable for classification of learning disabled children. At this beginning stage of research into learning disabilities in Botswana, however, the observed results at least indicate a possibly fruitful area for future research.

It should further be noted that while there seems in this case to be a tendency toward *statistically* significant differences between the observed means, this does not automatically translate into *practically* significant differences between means. Just because one is able to

observe statistical differences does not mean that one can use the instrument as a way of reliably differentiating between children in an actual classroom. In particular it should be noted that even though the means are different there is considerable overlap between the scores of both the identified and the non-identified groups in every case as indicated by the standard deviation of each distribution. Thus, while it is *more likely* that a child in the teacher identified group will score lower than a non-identified one, there will be at least some of the children in each group who will score higher or lower than some of the children in the opposite group.

2. What is the underlying structure of Behaviour Rating Scale? How do the subscales relate to each other?

Another way of asking this question is to ask whether and to what extent, any of the subscales are in fact measuring the same thing. There are several reasons as to why one might wish to do this. For one thing it might reveal that some parts of an instrument are redundant or unnecessary and thus could be eliminated without affecting the outcomes. Another reason might be an attempt to discover underlying factors in the instrument and the effectiveness of each in the assessment process. There are a variety of ways in which such a question might be addressed. This study does so by essentially two techniques:

1. Examination of the pattern of simple intercorrelations between subscale and total scores.

2. Factor Analysis; a technique which extends the correlation matrix above by looking for an underlying pattern within the correlations.

Correlations

Pearson Product Moment Correlations were calculated for all of the combined subscale and total scale scores with each other. Table Seven presents the correlation matrix of the combined scores on the subscales and the total score.

TABLE SEVEN

CORRELATIONS BETWEEN SUBSCALES AND TOTAL SCORES
(Combined Groups)

	Recpt. Lang.	Exprsv. Lang.	Orient.	Per/Soc Behav.	Phys. Coord.	Acadm. Skills
Spoken Lang.	.95					
Orientation	.81	.80				
Pers/Soc. Behav.	.85	.83	.87			
Phys. Coordination	.50	.49	.59	.59		
Academic Skills	.83	.83	.82	.85	.52	
Total Score	.94	.93	.91	.95	.63	.93

Note: For All Reported Coefficients: $p < .001$

Table Seven indicates that all of the subscale scores show a strong relation to each other as well as to the Total Score. In particular, one notes that the two language related subscale scores are related to each other most strongly while on the other hand, Physical Coordination seems to have the least relationship with scores on the other subscales although even this correlation shows a high level of statistical significance.

This pattern of correlations might be understood in either of several ways. It could be understood to indicate that the items on the scales are in fact measuring the same things, i.e. that the relationship between the scores lies within the scale itself. An alternative understanding might be that while the scales measure characteristics which are distinct from each other, the characteristics themselves nevertheless tend to found in common in given individuals. That is, the child who is high in receptive language, for example, is also likely to be high in academic skills, or the child whose orientation score is low is also likely to be low in spoken language. Yet a third understanding might be that teachers tend to think of their children in global terms without differentiating between specific characteristics in which the student may be particularly high or low. Thus, when they think of one of the children in their class who has trouble relating to others, for example, or who may be a poor student academically, they tend to rank him lower in other areas as well even though if these areas were to be measured objectively they might be found to be more nearly average.

To state the foregoing in yet another way, the strong observed intercorrelations may be indicative of relationships that are inherent in the items of the subscales, or that the relationships may be inherent in the children themselves, or that what was observed may be the result of the way in which teachers perceive the children in their classes. The present information does not permit conclusions as to which of these best explains the data at hand.

Factor Analysis

Factor Analysis is a "data reductive" procedure which compares, in this case, the response patterns for each of the items with the response patterns for each of the other items to determine the extent to which they relate to some defined or inferred factor which may underlie the scale. It may be used in an exploratory manner in which one has no preconceived ideas about what or how many factors may be observed, but simply takes note of whatever factors may emerge and tries to reach some understanding about their meaning. Alternately, it may be used in a confirmatory manner, in which the intent is to test some prior hypothesis about the underlying psychometric structure of the data at hand. In both instances, "factor loadings" are indications of the extent to which individual items correlate to that particular factor.

In this study, the factor analysis procedure used was the Principal Factors Method with Iterations (in which factors are inferred from the data rather than pre-defined) and rotated to a final solution by Varimax. The procedure was carried out for each of the groups separately resulting in four different factor solutions. These are presented below.

FIGURE ONE

FACTOR STRUCTURE FOR SETSWANA MEDIUM
STANDARD FIVE

Principle Factor with Iterations

Factor	Pct. of Variance	Cum. Pct.
1	92.4	92.4
2	7.6	100.

Loadings When Rotated to Final Solution (Varimax)

Factor	Most Heavy Loadings
1	Recpt. Lang
	Expr. Lang.
	Orient.
	Pers/Soc Beh
	Acad. Skls.
2	Phys. Coord.

As can be seen, the factor analysis for the Setswana standard fives indicated one major factor which by itself accounted for almost 93 percent of the variance and one minor factor which accounted for just over 7 percent. The factor loadings indicated that all but one of the subscales loaded heavily on the first factor while Physical Coordination alone loaded significantly on the second. This pattern of loadings implies a very simple factor structure in which Physical Coordination alone measures something which can be differentiated from whatever it is that Factor One is measuring. Examination of the subscales which load most heavily on Factor One suggest that this factor might be best defined as a "Good All Around Student" factor since it includes both language subscales as well as Behaviour and Academic Skills; while Factor Two includes the only subscale that appears to be distinctly different in focus--physical coordination.

FIGURE TWO

FACTOR STRUCTURE FOR SETSWANA MEDIUM

STANDARD SEVEN

Principal Factor with Iterations

Factor	Pct. of Variance	Cum. Pct.
1	87.4	87.4
2	7.5	94.9
3	5.1	100.0

Loadings When Rotated to Final Solution (Varimax)

Factor	Most Heavy Loadings
1	Receptive Lang. Expressive Lang. Items 3-7 of Academic Skills
2	Orientation Physical Coordination
3	Items 1-2 of Academic Skills

Figure Two suggests a factor structure that is somewhat more complex than that shown in Figure One. Here again, however, by far the greater part of the variance (87.4) is accounted for by the first factor. Only minimal contributions to the variance are made by the second and third factors.

Examination of those subscales and items which loaded on each of the factors suggest that the first factor (composed of the complete subscales for both of the language related ones and Personal/Social Behaviour; and five of the items from the Academic Skills subscale) suggest that this factor might appropriately defined as a "Language Skills and Personal, Social and Academic Habits. Again, this combination suggests a somewhat undifferentiated "All Around Good Student" factor as explaining the larger share of the variance. In this case the entire Orientation and Physical Coordination subscales together account for some 7 percent of the variance while items 1 and 2 from the Academic Skills subscale (reversals and word substitutions, both of which relate to reading skills) explain the remaining variance.

FIGURE THREE

FACTOR STRUCTURE FOR ENGLISH MEDIUM

STANDARD FIVE

Principal Factor with Iterations

Factor	Pct. of Variance	Cum. Pct.
1	90.0	90.0
2	5.6	95.6
3	4.4	100.0

Loadings When Rotated to Final Solution (Varimax)

Factor	Most Heavy Loadings
1	Receptive Lang. Expressive Lang. Items 2-5 from Academic Skills
2	Pers/Social Behaviour Items 1-2 from Orientation Items 6-7 from Academic Skills
3	Physical Coordination Items 3-4 from Orientation

Once again the first factor accounts for the largest majority of variance (90.0) and both the language-related subscales are loaded heavily on it. The items from Academic Skills which load heavily on Factor One relate to areas such as spelling, reading skills and consistent performance, thus comprising a factor which could be defined as "Language and Academic Achievement."

The second factor accounts for between 5 and 6 percent of the variance. It includes all of the Personal and Social Behaviour subscale along with the first two items from the Orientation subscale and items 6 and 7 from the Academic Skills subscale. Examination of these scales and items suggest some dissimilarity within the grouping and the underlying definitional factor is not immediately apparent. The best definition of the factor might be one called "Personal and Social Organization."

The third factor accounts for only about 4 percent of the variance and can be generally defined as "Physical Coordination." It includes heavy loadings from the Physical Coordination subscale as well as items 3 and 4 from "Orientation."

FIGURE FOUR

FACTOR STRUCTURE FOR ENGLISH MEDIUM

STANDARD SEVEN

Principal Factor with Iterations

Factor	Pct. of Variance	Cum. Pct.
1	79.4	79.4
2	10.3	89.7
3	5.7	95.4
4	4.6	100.0

Loadings When Rotated to Final Solution (Varimax)

Factor	Most Heavy Loadings
1	Receptive Lang. Expressive Lang. Item 3 from Orientation
2	Pers/Social Behaviour Items 1, 2, 4 from Orientation
3	Academic Skills Item 7 from Per/Soc Behav.
4	Physical Coordination

Figure four suggests that the responses of the English Medium Standard Seven teachers yield a more complex factor structure than any of the previous analysis. There are four factors, the first of which has become a predictable one with loadings from the "language subscales" as well as item 3 from "Orientation," an item which has to do with concepts of comparison such as "big" or "little." In this case the first factor accounts for only 80 percent of the variance however. The second factor appears very similar to the second factor found in the English Medium Standard Fives and might be similarly defined as "Personal and Social Organization" but accounts for about 10 percent of the variance. Factor 3 includes all of the Academic Skills as well as item 7 from "Behaviour" which is concerned with completion of assignments. The final factor accounts for less than 5 percent of the variance and is composed of the "Physical Coordination" subscale.

Discussion of Factor Analysis.

Several observations and comments can be made as the result of the factor analysis.

1. The generally simple factor structure found in the first three analyses suggest that those teachers tend to evaluate the children in their classrooms in broad, global terms. They tend not to differentiate between a child with behavioural problems and one with, for example, difficulty in expressing him or herself effectively. Whether this is due to lack of the specific knowledge which could permit such distinctions to be made or whether, indeed the children in Botswana tend to demonstrate these characteristics as a cluster is not clear from the data.

Evidence for the latter conclusion can be taken from the fact that the simpler factor structures seemed to emerge from those teachers whose level of training was generally lower. Teachers in the English Medium schools will in each case have completed secondary school and will hold at least a three year teaching diploma. Many teachers in these schools hold Bachelors degrees and most will have had at least some introductory courses to the field of special education. The teachers in the Setswana Medium Schools on the other hand will typically not have completed secondary school. Many (but not all) of them will have completed a primary teacher training course at one of the teacher training colleges. Their training will typically have included little or no information about children with special needs[1]. Thus the higher training level of the English Medium School teachers may have enabled them to make distinctions between behavioural characteristics which of the children which the Setswana Medium School teachers were not equipped to make.

At the same time, it should also be noted that the standard five teachers' responses in *both* groups showed some tendency toward a simpler factor structure than did their standard seven colleagues. Since one can generally assume the level of teacher preparation to be the same between standard five and standard seven within a given school type (although there are obvious differences between school types) level of teacher training could not completely account for the differences observed.

2. Clearly the most important factor in the scale is the one which focuses on language-related skills or general academic performance. This factor, or some variation of it, was observed in each of the analyses; and in each case accounted for a large percentage of the variation in the children's scores.

3. The Receptive and Expressive Language scales seem to have a great deal of overlap. That is, responses on either of them tended to be similar to responses on the other with regard to a particular child. Again, it is not clear from the data whether this may be due to the characteristics inherent in the children or the "response set" of the teachers.

Conclusion and Recommendations

The BRS appears to have potential use in Botswana as a screening device for children in with Learning Disabilities. However, a great deal of additional work needs to be done with the scale before it can be used with confidence in other than research settings.

1. Information gained from the factor analysis should be used to revise the scale with particular emphasis on eliminating duplication and of items and simplifying the subscale structure. The revised scale should be used in a replication study.

2. "Discrimination studies" need to be conducted in which clinically reliable criteria are used as a basis for evaluating the BRS's ability to distinguish between children who are likely to be learning disabled and those who are not. Continuous assessment and examination marks should be included among the criterion used.

3. The relationship between the teacher's familiarity with the concept of learning

---

[1] This is less likely to be true now than when these teachers were in training. Since 1985 a Special Education Unit has been established in the Ministry of Education and one of the Teacher Training Colleges, as well as the University of Botswana ,has been offering coursework in Special Education

disabilities and the factors which emerge from the factor analysis needs to be studied. What effect does prior teacher knowledge of learning disabilities have on the way in which he or she responds to the items on the BRS?

Finally, it is important to be reminded that identification of children with special educational needs is not an end in itself. There is obviously small value in identifying a child with special educational needs if that is the end of the process. In the final analysis, the usefulness of the concept of learning disabilities for the Southern Africa educational context will largely depend upon the extent to which resources and techniques can be developed not only for identification but for remediation. Screening and identification techniques are after all only tools which can assist in the larger task of making educational decisions which are intended to benefit the "consumer" of the process--the child.

References:

Bryant, N. & McGloughlin, J. (1972) "Subject Variables: Definition, incidence, characteristics and correlates. In N.D. Bryant and C.E. Kass. (Eds.) *Final Report:* Leadership training institute in learning disabilities (Vol I). Tucson: University of Arizona Department of Special Education.

Cruikshank, W., Morse, C. & Johns, J. (1980) *Learning disabilities: The struggle from adolesence to adulthood.* New York: Syracuse University Press.

Kephart, N. (1960) *The Slow learner in the classroom.* Columbus: Merrill.

Kilonzo, F. (1982) Current services for special education in Eastern Africa - A report. *BERC Bulletin.* No. 8. Nairobi: Kenyatta University College.

Kirk, S. & Gallagher, J. (983) *Educating exceptional children* Dallas: Houghton Mifflin.

Myklebust, H. R. (1981) *The Pupil Rating Scale Revised: Screening For Learning Disabilities* New York: Grune and Stratton, Inc.

Tarnopol, L. & Tarnopol M. (1981) *Comparative reading and learning difficulties.* Lexington, MA: Lexington Books.

Yoder, J. H. and Kibria, K.F.M. (1987) Learning Disabilities Among Primary School Children in Botswana: A Pilot Study. *International Journal ofSpecial Education,* 2, 1-24.